IPSO Semantic Committee

F2F Meeting

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Agenda: Ongoing Activities

1. Charter
   - Stronger focus on interoperability with other orgs by creation of meta-models, translation/mapping tools, etc.
2. Milestones
   - Some fulfilled, others not.
   - Maybe needs revisiting after IOTSI.
3. External Presentation Series
   - Having dedicated speakers on IPSO Semantic WG in order to better know the state of the art.
4. IAB IOTSI Workshop
   - Getting all of the relevant organizations together in a room to discuss semantic interoperability problems and solutions.

1. Charter

- Goals:
  - New bindings for backwards compatibility and for cross-domain interoperability (e.g. LWM2M and OCF's RAML).
- Phases:
  1. Definition of architectural principles and design guidelines for constructing interoperable semantic data models.
  2. Definition of meta-model for describing semantic properties for interoperability.
  3. Mapping of meta-model to specific bindings, such as LWM2M (IPSO gen 1) and OIC.
- Charter:
  - http://www.ipso-alliance.org/wp-content/uploads/2016/02/2016-02_IPSO_semantic_charter_final.pdf
  - https://github.com/IPSO-Alliance/SmartObjectGuidelines/blob/master/Charter/

2. Milestones

- Feb 2016. Position paper submitted to IAB workshop on semantic interoperability for IoT describing future interoperability approach and the work done by the IPSO Alliance with the Starter Pack.
- Mar 2016. Developer Guideline specification finalized by the group
- April 2016. First draft of the architectural principles and design guidelines for constructing interoperable semantic data models (generalized information model) published in the group
- Apr 2016. Outline for scope of reference implementation available within the group
- May 2016. Registration of GW Application Specific Objects with OMNA
- May 2016. Registration of Lightning Application Specific Objects with OMNA
- May 2016. IPSO Registry put online. Policy for registering smart objects published on the IPSO website.
- July 2016. Meta-data specification finalized by the group.
- August 2016. Generalized information model (meta-model) published by the group
- Oct 2016. First reference implementation available for download via the IPSO website
- Q4 2016. Mapping of meta-model to LWM2M (IPSO gen 1) and at least one other protocol published by the group to demonstrate interoperability.

3. IoT External Presentation Series

- Robert Cragie
  - Z-CLIP: ZigBee Cluster Library over Internet Protocol
- Abhinav Somaraju
  - Constrained Objects Language (Cool)
- Olaf Weinmann
  - Eclipse Vorto
- Doug Migliori
  - ControlBEAM
- David Janes
  - IoTDB
- Matthias Kovatsch
  - Self-describing Interaction Models

Slides:

- https://github.com/IPSO-Alliance/SmartObjectGuidelines/tree/master/Presentations

4. IAB Semantic Interoperability Workshop - IOTSI

- Learning about data models, meta-data, semantics, schemas from multiple organizations.
  - https://www.iab.org/activities/workshops/iotsi/

4. IOTSI

Organizers , Organizations & Participants

- Andy Bierman, YumaWorks
- Carsten Bormann, Uni Bremen/TZI
- Ben Campbell, Oracle
- Benoit Claise, Cisco
- Alissa Cooper, Cisco
- Robert Cragie, ARM
- Laura Daniele, TNO
- Bryant Eastham, OpenDof
- Christian Groves, Huawei
- Ted Hardie, Google
- Yonggeun Hong, ETRI
- Russ Housley, Vigil Security
- David Janes, IOTDB
- **Jaime Jiménez, Ericsson**
- Shailendra Karody, Catalina Labs
- Ari Keränen, Ericsson
- **Michael Koster, SmartThings**
- Matthias Kovatsch, Siemens
- Kai Kreuzer, Deutsche Telekom
- Barry Leiba, Huawei
- Steve Liang, Uni Calgary
- Marcello Lioy, Qualcomm
- Kerry Lynn, Verizon
- Mayan Mathen, Catalina Labs
- Erik Nordmenk, Arista
- Jean Paoli, Microsoft
- Joaquin Prado, OMA
- Dave Raggett, W3C
- Max Senges, Google
- Ned Smith, Intel
- Robert Sparks, Oracle
- Ram Sriram, Nist
- Clarke Stevens
- Ram Subramanian, Intel
- Andrew Sullivan, DIN
- Darshak Thakore, Cablelabs
- **Dave Thaler, Microsoft**
- **Hannes Tschofenig, ARM**
- Michael Verschoor, Philips Lightning

4. IOTSI – Discussion Items

- Abstraction layer, semantic overlay, extensible and inclusive properties
- Ontology based information models
- Simple/general vs. specific/expressive tradeoff, enable innovation and differentiation
- Modularity and reuse, molecules composed of atoms
- Interoperabilty doesn't require reuse
- Code generation is a developer optimization - (is it a path to scale?)
- Model translation vs metadata translation, ALGs
- Schema.org type approach, repository vs. distributed, inclusive vs. prescriptive

4. IOTSI – Mapping IMs and DMs

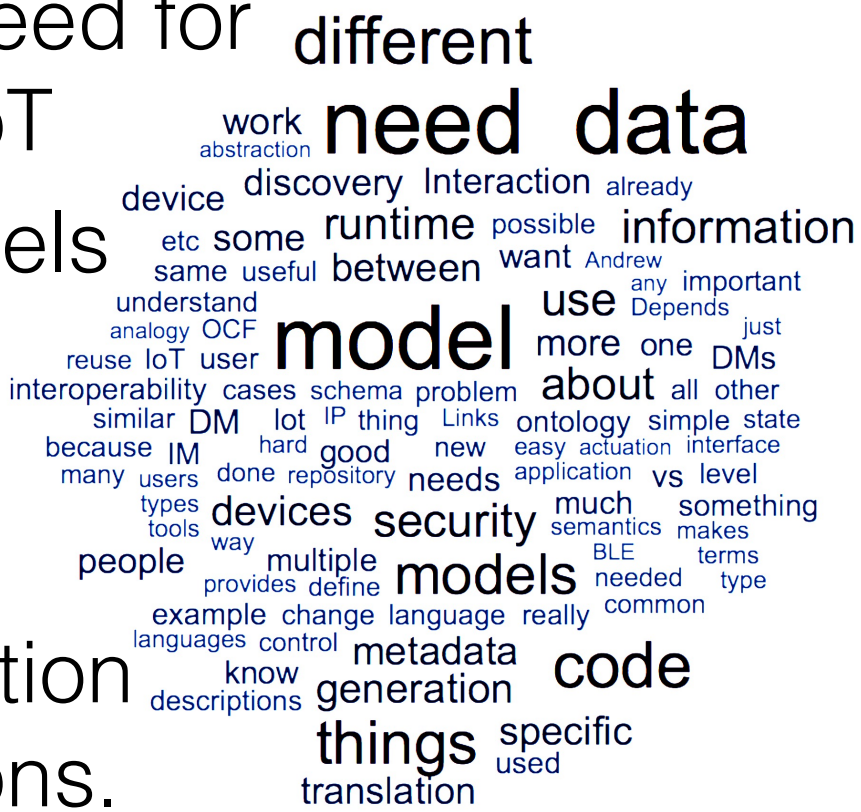
- Runtime translation of data vs Translating DMs
- "Translation Hub/s" and how to implement it/them.
- Translation is easier if there is REST.
- Design patterns (REST, PubSub, RPC) and discovery in them.
- "Loss" in translation from more → less expressive models
- No multiprotocol option for constrained devices.

4. IOTSI – Runtime Discovery

- Discovery of devices and abstract entities
- How much must be shared beforehand?
- Incremental discovery + Bookmarking.
- Predefined interfaces problem
  - What if you don't have the logic already implemented.
- Real time vs Pushing code
  - Need to avoid locked-in situation and provide scalability.
- Intelligence on device vs intelligence on GW and elsewhere.
- Automatic mapping models and discovery requires code.

4. IOTSI - Takeaways

- Agreement on the need for interoperability on IoT
- Translation btw models will be required.
- Each Org will try to try to converge on common representation formats and definitions.



4. IOTSI – Other useful Links

- Meeting minutes
  - https://docs.google.com/document/d/1cH-LiKFfD1wAN2sFDPWkvNDSwIIXzI2QTyGPLaHJcYc/edit
- Slides
  - https://github.com/jaimejim/iot-playground/tree/master/IOTSI/Slides
- Summary slides:
  - https://github.com/jaimejim/iot-playground/blob/master/IOTSI/Slides/IOTSI%20Summary%20Day%20%231.pdf
- Papers
  - https://www.iab.org/activities/workshops/iotsi/
- Report (Work in Progress)
  - https://raw.githubusercontent.com/jaimejim/iot-playground/master/IOTSI/Report/draft-iotsi-jaime-00.txt